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Indian Standard



SPECIFICATION FOR QUARTZ CRYSTAL UNITS USED IN OSCILLATORS

PART II SERIES AA

Section 3 Quartz Crystal Unit Type AA-03

- **0. General** This standard shall be read in conjunction with IS: 8271 (Part I)-1981 'Specification for quartz crystal units used for frequency control and selection: Part I General requirements and tests (first revision)'.
- 1. Outline and Dimensions Holder outline shall conform to type AA (see sheet 1A of IS: 4570-1968 'Specification for crystal holders').
- 2. Marking See 8 of IS: 8271 (Part I)-1981.
- 3. Construction and Workmanship See 7 of IS: 8271 (Part I)-1981.
- 4. Test Schedule and Detail Requirements
- 4.1 General Conditions for Test See 9.2 of IS: 8271 (Part I)-1981.
- 4.2 Test Schedule The sequence and grouping of type, routine and acceptance tests shall be as per 9.1 of IS: 8271 (Part I)-1981.
- 4.3 Detail Requirements The detail requirements applicable to this particular type of crystal unit shall be as specified in Table 1.

	TABLE 1 DETAIL REQUIREMENTS OF QUAI	RTZ CRYSTAL UNIT 1	YPE AA-03
Characteristics		Requirements	
a)	Type of holder	AA (See 1)	
b)	Frequency range	1 to 20 MHz	
C)	Frequency tolerance		
	i) Over operating temperature range	\pm 30 ppm	
d)	Resonance resistance	See Table 2	
e)	Mode of oscillation	Fundamental	
f)	Load capacitance	Infinity (Series)	
g)	Capacitance shunt	7 pF, Maximum	
h)	Operating temperature range	-20°C to +70°C	
j)	Test set, calibration values and rated drive level	See Table 3	
k)	Shock [as per 9.15 of IS:8271 (Part I)-1981]	1 to 2 MHz	Over 2·0 to 20 MHz
	i) Frequency change permitted	\pm 10 ppm	±5 ppm
	ii) Resonance resistance change permitted	\pm 15 percent	±10 percent
m)	Vibration [as per 9.16.1 (severity A) of IS : 8271 (Part I)-1981]		
	i) Frequency change permitted	\pm 10 ppm	±5 ppm
	li) Resonance resistance change permitted	±15 percent	±10 percent
n)	Temperature cycling		
	i) Frequency change permitted	\pm 10 ppm	±5 ppm
	ii) Resonance resistance change permitted	\pm 15 percent	±10 percent
p)	Temperature run		
	i) Frequency change permitted	\pm 10 ppm	±5 ppm
	ii) Resonance resistance change permitted	±15 percent	±10 percent
q)	Ageing		
	Frequency change permitted	5 ppm	

Adopted 8 May 1981

@ July 1981, ISI

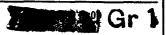


TABLE 2 RESONANCE RESISTANCE

[Table 1(d)]

Frequency Range	Maximum Resonance Resistance	Frequency Range	Maximum Resonance Resistance
MHz	Ohms	MHz	Ohms
(1)	(2)	(1)	(2)
From 0.9 to 1	440	Over 2.25 to 2.6	130
Over 1:0 to 1:12	400	Over 2.6 to 3.0	90
Over 1:12 to 1:25	380	Over 3 to 3·4	70
Over 1:25 to 1:37	340	Over 3.4 to 3.75	52
Over 1:37 to 1:5	300	Over 3:75 to 4:0	45
Over 1.5 to 1.62	280	Over 4 to 5	37
Over 1.62 to 1.75	250	Over 5 to 7	25
Over 1.75 to 1.87	220	Over 7 to 10	20
Over 1.87 to 2.0	190	Over 10 to 15	18
Over 2:0 to 2:12	170	Over 15 to 20	15
Over 2:12 to 2:25	150		

TABLE 3 TEST SET, CALIBRATION VALUES AND RATED DRIVE LEVEL [Table 1(j)]

Sł No.	Frequency Range	Calibration, Values			Rated Drive
		Resistance	Crystal Current	Resistor Voltage Drop	Level
	MHz	ohms	mA	V	mW
(1)	(2)	(3)	(4)	(5)	(6)
1.	From 0.8 to 1.5	100	10	– j	
2.	Over 1.5 to 2.25	50	15	-	
3.	Over 2:25 to 3:4	40	15	-	40-0 - 0 0
4.	Over 3.4 to 5.1	25	20	- [10·0±2·0
5.	Over 5.1 to 7.5	14	25	- }	t
6.	Over 7.5 to 10	11	30	- J	
7.	Over 10:0 to 15	13	20	_	5·0±1·0
8.	Over 15:0 to 20	10		0.22	5·0±1·0

For SI No. 1 to 7 — Test Set TS-330/TSM

For SI No. 8 — Test Set $\,$ TS-683/TSM